

Lesson Plan Assignment

| Unit: Animals – Structure and Function | | Grade 11 Biology |
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| Lesson Sequence | Lesson Plan Title | Names |
| First Lesson | The Components of Blood | Janny Li and Megan Clark |
| Second Lesson | The Structure and Function of Blood Vessels | David Kim and Zohara Greenbaum |
| <p>Rationale: These two lessons fit in to the overall unit within the Circulatory System subsection of the unit. The lesson, <i>The Components of Blood</i>, will introduce students to the physical make-up of blood and the functions of each component. This will transition into the second lesson, <i>The Structure and Function of Blood Vessels</i>, where students will take what they know about the components of the blood and examine how blood flows within the body. Through this lesson, they will specifically refer to the significance of the different vessels through which blood flows with direct reference to the previously discussed components of blood.</p> <p>The Big Ideas are supported through both lessons since the students will more deeply understand the complexities of the circulatory system and how it functions within the human body.</p> <p>The Learning goals are also supported, since they directly follow from the curriculum expectations. Both lessons address similar specific expectations, but in very different ways. It is important to vary each lesson to engage the students, while always still fulfilling the curriculum requirements.</p> | | |

FIRST LESSON by Janny Li and Megan Clark

Unit: Animals: Structure and Function
Lesson: The Components of Blood

SBI3U (Grade 11)
University Biology

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| 75 min | <p>Big Idea</p> <ul style="list-style-type: none"> Groups of organs with specific structures and functions work together as systems which interact with other systems in the body <p>Specific Expectations Addressed</p> <ul style="list-style-type: none"> E3.3 explain the anatomy of the circulatory system (e.g., blood components, blood vessels, the heart) and its function in transporting substances that are vital to health E2.1 use appropriate terminology related to animal anatomy, including, but not limited to: <i>systolic</i>, <i>diastolic</i>, <i>diffusion gradient</i>, <i>inhalation</i>, <i>exhalation</i>, <i>coronary</i>, <i>cardiac</i>, <i>ulcer</i>, <i>asthma</i>, and <i>constipation</i> [C] <p>Prior Knowledge Students should have prior knowledge of, or be familiar with:</p> <ul style="list-style-type: none"> The Cell Theory (Grade 8, Understanding Life Systems, Cells) Variety of systems in animals and primary functions (SNC2D – Biology) Interaction of different systems within an organism and why such interactions are necessary for survival (SNC2D – Biology) Fundamental chemistry knowledge/Periodic Table of Elements (SNC1D – Chemistry, SNC2D – Chemistry) <p>Learning Goals</p> <ul style="list-style-type: none"> Students will be able to use vocabulary related to blood and its components including, but not limiting to, platelets, plasma, red blood cells, white blood cells, hemoglobin Students will be able to state the 4 principal components of blood and their functions Students will be able to describe the percentage make up of blood by its components | <p>Materials</p> <ul style="list-style-type: none"> Print outs of four corner statements (<i>Appendix A</i>) Student Worksheets (<i>Appendix B</i>) Teacher Worksheet Solutions (<i>Appendix C</i>) Chart Paper (4 pieces) Markers (at least 8) Tape (to post Four Corner statements and Chart paper) Exit Cards (<i>Appendix D</i>) <p>Agenda</p> <ol style="list-style-type: none"> 1) Four Corners Activity 2) Pairs Investigation 3) Expert Group Presentations 4) Consolidation Activity 5) Exit Card 6) Homework |
| <p>Minds On...</p> <p>10 min</p> | <p>Small Groups → Discussion (10 min)</p> <ul style="list-style-type: none"> Four Corners activity: students will choose 1 of the 4 statements, each posted in a different corner of the room (<i>See Appendix A</i>) Students at each corner will discuss why they chose the statement with justification Within each group, students will choose 1 person to present their key discussion points to the rest of the classroom | <p>Rationale</p> <ul style="list-style-type: none"> - Stimulating question to get capture students' attention - Introduces topic in a creative way and will be used to consolidate knowledge at the end of the lesson - Interactive and gets students personally involved from the start - Accommodates different learning styles (kinesthetic, visual, auditory combined) <p>Assessment</p> <ul style="list-style-type: none"> - <i>AS learning</i>: students justify and verbalize why they chose their option |
| <p>Action!</p> | <p>Pairs → Investigation (20 min)</p> <ul style="list-style-type: none"> Students will get together in pairs and each student will receive a Blood Components Worksheet (<i>See Appendix B</i>) Each pair will be assigned one of the four components to work on together (A., B., C., or D.) Each pair will also complete the Blood Component Breakdown section for their component Sources for the information include the textbook and Internet sources, a word bank is included on the worksheet for each section (there are several "extra" answers in each word bank) | <p>Rationale</p> <ul style="list-style-type: none"> -Allows students to explore and investigate with new concepts, while supports one another and utilizing resources such as peers, textbook, and Internet. - Covers all required material on lesson topic - Gives opportunity for students to present learned |

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| <p>50 min</p> | <p>Expert Groups → Group Summary (15 min)</p> <ul style="list-style-type: none"> • Pairs that studied the same situation component will join to form a larger expert group • Groups discuss and share their findings and summarize the information on Chart paper <p>Expert Groups → Presentations (15 min)</p> <ul style="list-style-type: none"> • Each group will present their findings to the rest of the class who will simultaneously fill in the appropriate subsection of the worksheet • Each group will make specific reference to the Blood Component breakdown and how much their component represents on the diagram • Teacher will regulate and check in with the class throughout the presentations to make sure everyone is getting down the correct information (See <i>Appendix C</i>) | <p>material and practice their oral communication skills</p> <p>Assessment</p> <ul style="list-style-type: none"> - <i>FOR learning</i>: teacher is able to see what they have learned in their pairs and expert groups and can use this to gauge what still needs to be clarified - teacher is also able to assess the oral communication skills of their students |
| <p>Consolidate/Debrief</p> <p>15 min</p> | <p>Whole Class → Discussion (5 min)</p> <ul style="list-style-type: none"> • Students will answer the questions: how does all of this relate to our first activity? Which component is represented in each four corner statement and why? • Serves as a summary of the functions of the four components by relating each one to one of the four corner phrases • Each group will put up their chart paper summary in the corresponding corner once the class has come to an agreement about the relationships <p>Whole Class → Activity (5 min)</p> <ul style="list-style-type: none"> • Students will be asked to model the proportions of each component in the blood (from the last page of the worksheet) by distributing themselves in each corner accordingly (i.e. There should only be 1 student in both the "Platelet" and "White Blood Cell" corner and the rest of the class split almost evenly in the "Plasma" and "Red Blood Cell" corner) <p>Individual → Exit Card (5 min)</p> <ul style="list-style-type: none"> • Before they leave the class, students will fill out an exit card for further consolidation of learning (See <i>Appendix D</i>) | <p>Rationale</p> <ul style="list-style-type: none"> - To highlight "Big Ideas" and important concepts of lesson - Gives students opportunity to inquire, discuss, and clarify - Encourages students to reflect on their learning and experience - Exit Card allows students who shy away from asking for help/clarification during class an opportunity to speak up about anything that was difficult or challenging <p>Assessment</p> <ul style="list-style-type: none"> - <i>FOR learning</i>: teacher is able to see how students can make connections and work together to come to a consensus, which can therefore inform potential future activities - <i>AS learning</i>: students can see what connections they can make and what they took away from the lesson (relating to meta-cognition) |
| | <p>Home Activity or Further Classroom Consolidation</p> <p>Differentiated Exploration</p> <p>Each student will choose to do one of the following two options:</p> <ol style="list-style-type: none"> 1) Write a 1/2-page story from the perspective of a white blood cell OR red blood cell moving through the body. 2) Research a disease that affects the blood and describe the causes and effects of this disease. | <p>Rationale</p> <ul style="list-style-type: none"> -To connect with future lessons on blood vessels as well as blood-related diseases - To reinforce the concepts covered in lesson <p>Assessment</p> <ul style="list-style-type: none"> - <i>FOR learning</i>: teacher can use what the students share the next class as a way of gauging their understanding of the previous lesson and to inform future lessons |